REGIONAL GOODS MOVEMENT STUDY

FOR THE SAN FRANCISCO BAY AREA

Final Summary Report

December 2004

METROPOLITAN
TRANSPORTATION
COMMISSION

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STUDY PURPOSE

1. Help MTC develop priorities for allocating transportation funds for goods-movement activities
2. Provide local decision-makers with economic impact information to consider when making infrastructure and land-use decisions affecting this industry
3. Prepare a common freight platform for MTC and its partners for federal advocacy and regional planning efforts

WORKSCOPE

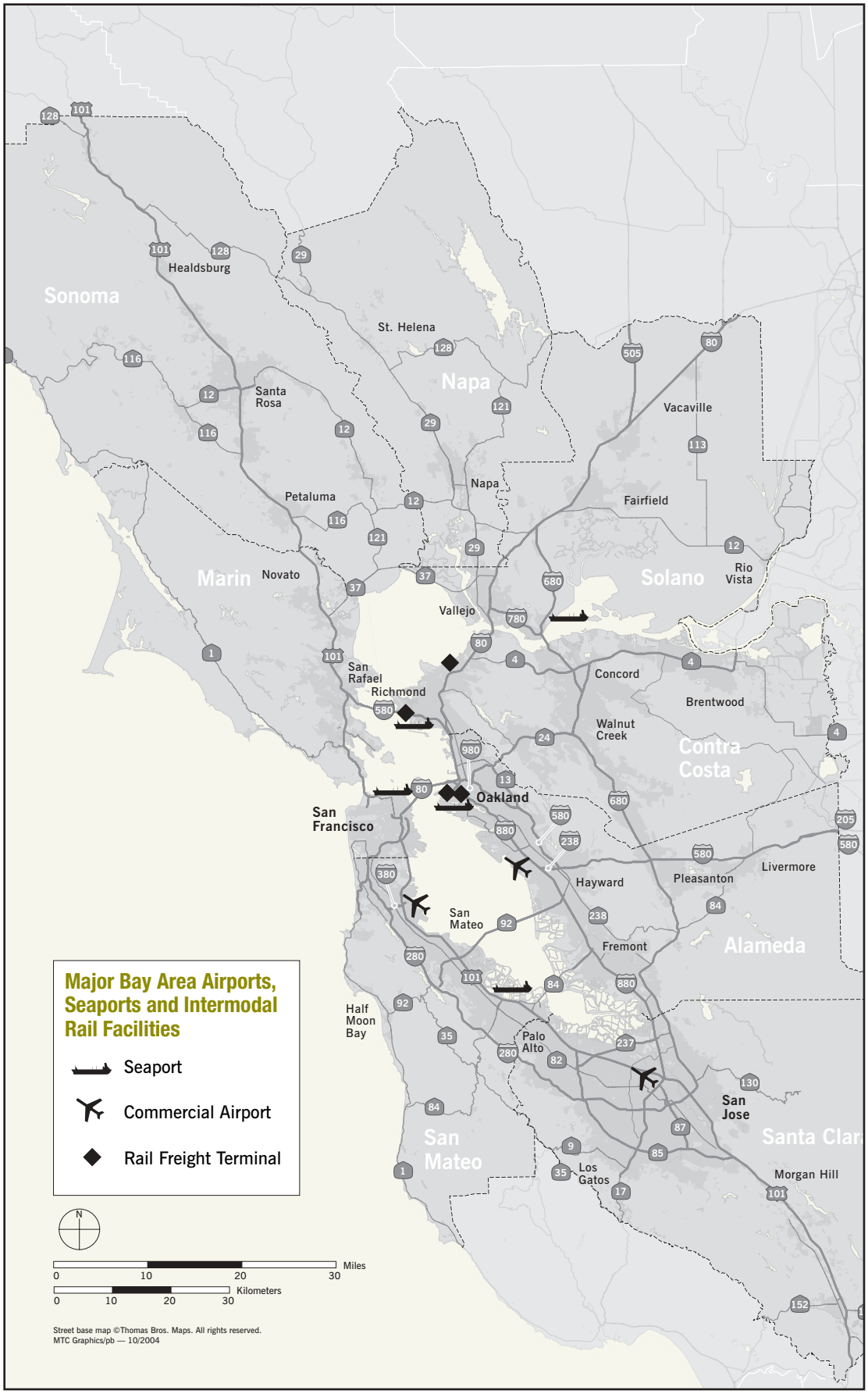
Phase 1

Focused on understanding the movement of goods and the economic impact of this industry on the Bay Area economy, and answered three main questions:

- Who is moving goods?
- Where are the goods being sent?
- How are they being moved?

Phase 2

- Assessed both the economic and employment impact of the industry on the Bay Area and its subregions
- Provided a "big picture" analysis of the industry for policymakers
- Focused on the interaction among the trends in the goods-movement industry, local policy decisions that affect the goods-movement industry, and the industry's impacts on the regional economy



Study Purpose and Need

Background

Goods movement is an integral element of the Bay Area economy and transportation system. Local businesses rely on the goods-movement system to take their products to market and to receive supplies. Residents rely on the goods-movement system to bring consumer goods to the region. And Bay Area seaports and airports are major international trade gateways for the rest of California and the United States.

Despite its importance, only since the early 1990s has goods movement been explicitly considered in regional transportation planning. With the passage of the federal Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991, states and metropolitan planning organizations were, for the first time, required to consider goods movement in the development of the regional transportation plan. In response to this requirement, MTC convened a goods-movement roundtable in 1992 with trucking, maritime, rail and air cargo representatives to solicit ideas on how MTC could consider goods-movement issues in our planning and funding decisions. MTC's Freight Advisory Council (FAC) became the successor to the goods movement roundtable.

During its development of the long-range 2001 Regional Transportation Plan (RTP), MTC heard from the business community that goods-movement planning needed the same level of attention that other aspects of the transportation system receive. With federal surface transportation legislation scheduled for reauthorization in 2003 and an RTP update scheduled for 2005, MTC pulled business leaders and transportation partners together in early 2003 to look at goods movement and how it should be incorporated into the region's transportation planning. This study was commissioned as a result.

Goals

The goals of the Regional Goods Movement Study were:

1. To determine the economic significance of goods movement in the Bay Area and to inform decision-makers about the economic implications of policy decisions that affect goods movement

2. To provide guidance to MTC, so that it can determine the most appropriate investment strategies and policies for improving regional goods movement in MTC's current long-range RTP update (known as the Transportation 2030 Plan)

3. To forge a consensus that would allow the Bay Area to pursue goods-movement issues in the reauthorization of Federal surface transportation legislation and other state and national goods-movement policy discussions

The study was conducted in two phases. Phase 1 compiled data and information on the goods-movement system, evaluated the economic significance of goods movement, and analyzed land-use and goods-movement issues. Phase 2 identified air quality issues related to goods movement, summarized key goods-movement issues, identified project and policy options for the Transportation 2030 Plan and ongoing transportation planning, and evaluated regional goods-movement/land-use issues and options.

STUDY OVERSIGHT

Several organizations came together to help MTC fund and guide the Regional Goods Movement Study, including: Economic Development Alliance for Business, Bay Area Council, Port of Oakland, Bay Area Air Quality Management District and Caltrans.

NEXT STEPS

The results of this study have been incorporated into MTC's 2005 regional transportation plan (known as the Transportation 2030 Plan). The Plan includes many "calls to action" to help direct future freight-related investments and to develop regional strategies to encourage local communities to preserve land for freight-related uses.

The Regional Goods Movement Study is a key planning input:

- The Goods Movement Study is the principal source of strategic policy and investment guidance for the Transportation 2030 Plan.
- The Goods Movement Study provides direction for the region's input into statewide plans such as the Interregional Transportation Improvement Program (ITIP) and the Global Gateways Program.
- The Goods Movement Study provides a common platform to express Bay Area interests for goods movement and freight elements in the reauthorization of federal surface transportation legislation.

The Regional Goods Movement Study is an integral component of the Bay Area's transportation planning efforts. Its completion during the process of preparing the Transportation 2030 Plan ensured that the study would make significant contributions to the plan. A specific policy goal addressing goods movement issues was incorporated for the first time into Transportation 2030. Also, specific infrastructure projects were identified as part of the investment strategy, new planning programs were proposed, and goods movement was addressed in the regional transportation and land-use platform.

Policy Goal for Goods Movement in Transportation 2030

The Transportation 2030 goods movement policy goal includes three objectives:

- Identify key improvements in the surface transportation system where public investment can help the freight industry
- Identify long-term capacity issues associated with cargo movement through airports and seaports
- Collaborate with the private sector to best leverage both public and private financial resources to improve freight-related infrastructure

Goods-Movement Goals for the Bay Area

Goods-movement investments and policies will:

- Ensure the economic viability of the the Bay Area's international gateway facilities and will ensure that regional businesses have access to efficient transportation
- Provide for the efficient delivery of goods and services to the residents of the Bay Area
- Improve the safety, reliability and environmental quality of the goods-movement system and neighboring communities
- Support and enhance the regional Smart Growth strategies

Caltrans

What Is Goods Movement in the Bay Area?

Goods movement provides three distinct functions in regional transportation:

Local pickup and delivery and service trucking

- Largest share of truck traffic
- Supports local businesses and consumer markets

Domestic trade

- Provides access to national markets for Bay Area manufacturing
- Provides connections to major consumer goods suppliers
- Occurs over long-haul network in truck, rail and air systems

International trade

- Fastest-growing component of regional goods movement
- Largest fraction is consumer imports and high-tech and food product exports
- Seaports and airports are major gateway facilities

Bay Area goods movement includes all major modes:

Trucking

- Moves most Bay Area freight
- Moves the widest range of commodities and serves all freight markets

Rail

- Largest fraction of rail traffic is inbound from the rest of the U.S.
- Provides transportation for long-haul bulk movements
- Provides important transportation links to seaports

Marine

- Largest and fastest-growing segment is containerized cargo
- Port of Oakland is one of few West Coast ports where exports exceed imports

Air

- Air cargo is fastest-growing freight mode
- San Francisco customs district is a West Coast leader in international air cargo

Expected increases in population and a resurgent economy will contribute to increased truck movement throughout the region, especially near the Bay Area's major airports and seaports.

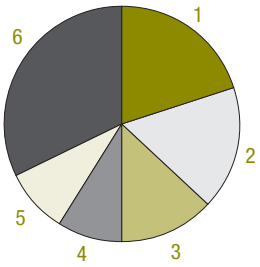
Innovation in intermodalism has transformed the movement of freight, creating efficient connections between carriers, but ultimately the region's major freight corridors will need further expansion.

Both congestion of key freight routes and the reliability of trip times have become major concerns for those that move freight within, into and out of the Bay Area.

The increasing cost of moving freight in the region could contribute to a higher cost of living, while impediments to shipping freight could lead some industries to relocate.

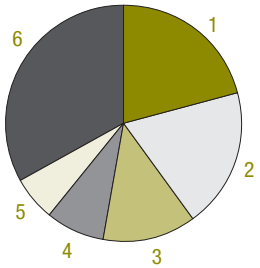
Bay Area Domestic Commodity Flow — Top Five Commodities
(Internal, Inbound and Outbound)

Weight



1. Warehouse & distribution center, rail intermodal drayage 20%
2. Clay, concrete, glass or stone 17%
3. Nonmetallic minerals 13%
4. Food and kindred products 9%
5. Waste or scrap metal 9%
6. Others 32%

Dollar Value



1. Warehouse & distribution center, rail intermodal drayage 21%
2. Electrical machinery, equipment or supplies 19%
3. Transportation equipment 13%
4. Machinery excluding electrical 8%
5. Food and kindred products 6%
6. Others 33%

Source: Caltrans, 1996 Intermodal Transportation Management System (ITMS) Data

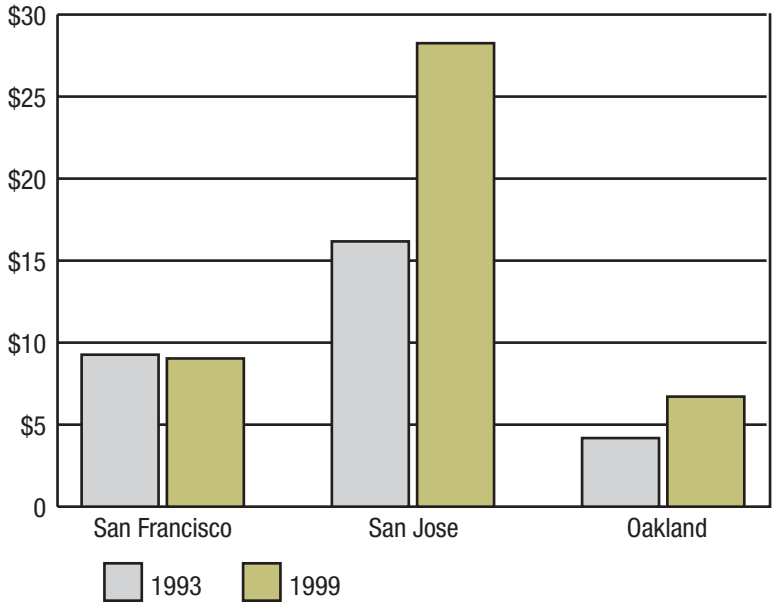
Goods movement is critical to the Bay Area's transportation and economic systems. As with any number of other "utility" systems, Bay Area businesses and residents could not function without a robust goods-movement system.

Goods movement in the Bay Area can be thought of as serving three primary markets or functions: local distribution/pick-up/delivery and service markets; long-haul domestic trade markets; and international trade. A primary function of goods movement in the Bay Area is to support households and commercial establishments. Measured in terms of tonnage, approximately 46 percent of goods moved into, out of or within the Bay Area have both an origin and a destination within the region, and much of this local goods movement is putting consumer goods on the shelves of retail stores or in offices and service businesses throughout the region. Measured in terms of value, commodities such as food, construction materials and consumer electronics comprise an extremely large fraction of what moves into and within our area.

The goods-movement system provides an important link between the Bay Area and the national economy. Measured in terms of value of product, the region exports more than it imports from the rest of the country. Major domestic trading partners for the Bay Area are Southern California, the San Joaquin Valley, and, to a lesser extent, other western states.

The fastest-growing segment of goods movement and a major component of the Bay Area economy is international trade. Between 1993 and 1999, the value of exports from the region increased by almost 50 percent. In 2000, the San Francisco customs district processed the highest value of air cargo of any customs district on the West Coast. The Port of Oakland is one of the few West Coast ports where export container volumes exceeded import volumes.

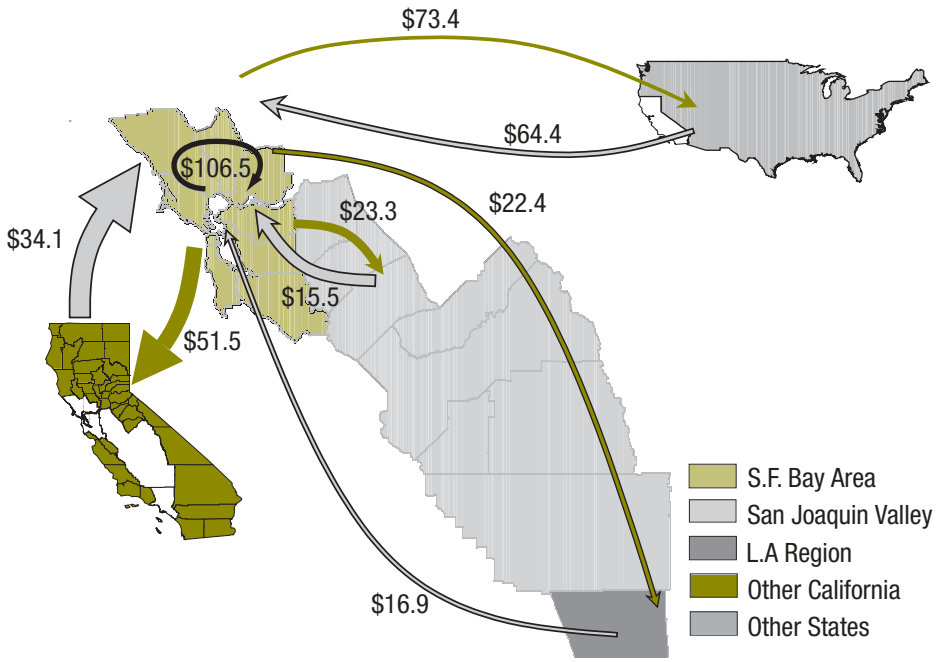
International Exports From Bay Area Metropolitan Areas, 1993 and 1999
($ in billions)



Source: U.S. Department of Commerce, 2000

The Largest Share of the Bay Area's Domestic Trade Stays Within California

($ in billions)



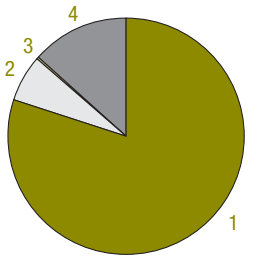
Trade Flow	Annual Dollar Value (in billions)
Within Bay Area	$106.5
Bay Area to San Joaquin Valley	$23.3
San Joaquin Valley to Bay Area	$15.5
Bay Area to Los Angeles Region	$22.4
Los Angeles Region to Bay Area	$16.9
Bay Area to "Other California"*	$51.5
"Other California" to Bay Area	$34.1
Subtotal — Bay Area Domestic Trade Within California	**$270.2**
Bay Area to All Other U.S. States	$73.4
All Other U.S. States to Bay Area	$64.4
Subtotal — Bay Area Domestic Trade Outside California	**$137.8**
TOTAL	**$408.0**

* "Other California" refers to all counties outside the Bay Area, San Joaquin Valley and Los Angeles regions

Source: Caltrans, 1996 ITMS Data

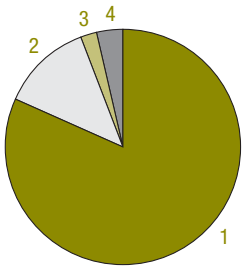
Trucking Carries the Largest Share (by Both Weight and Dollar Value) of Bay Area Domestic Trade
(Internal, Inbound and Outbound)

Weight
(100% = 322 Million Tons)



1. Truck	80.2%
2. Rail	6.3%
3. Air	0.2%
4. Marine	13.3%

Dollar Value
(100% = $408 Billion)



1. Truck	81.7%
2. Rail	12.5%
3. Air	2.3%
4. Marine	3.5%

Source: Caltrans, 1996 ITMS Data

The Goods-Movement System

The goods-movement system in the Bay Area consists of several major highway corridors: a freight rail system operated by two Class I carriers (the Union Pacific Railroad and the Burlington Northern and Santa Fe Railway), seaports (including the principal international water trade gateway at the Port of Oakland) and airports (including the principal international air cargo gateway at San Francisco International Airport and the principal domestic air cargo gateway at Oakland International Airport).

Highway

In terms of volume, more than 80 percent of the goods movement in the Bay Area involves trucking in several major corridors: Interstates 80, 580 and 880, and U.S. Highway 101. Other highway corridors play supporting roles to these major goods-movement corridors.

The I-880 corridor carries the highest volume of truck traffic in the region and among the highest of any highway in the state. Serving the Port of Oakland, Oakland International Airport, and the Oakland Intermodal Gateway Terminal (the Joint Intermodal Terminal), as well as a major concentration of industrial and warehouse land uses, I-880 serves as both an access route for major interregional and international shippers and a primary intraregional goods-movement corridor.

The I-580 corridor is the primary connection between the Bay Area and the national interstate truck network. A substantial share of Bay Area domestic trade is with Southern California, the San Joaquin Valley and other West Coast destinations, and most of this trade uses I-580 as a connector. This corridor experiences the second-highest volume of truck traffic in the region, most of it long-haul in nature and involving the heaviest trucks. Increasingly, regional distribution centers have located in the San Joaquin Valley and trucks providing goods to the Bay Area use this corridor for access. I-80 carries the third-highest truck volume in the region, serving primarily as a connector to the transcontinental truck network.

The U.S. 101 corridor acts as a gateway corridor at the southern end of the region, with modest truck volume between Salinas and San Jose. Truck volume increases substantially from San Jose to San Francisco, where the corridor serves as a primary access route to San Francisco International Airport and intraregional goods movement. In this part of the corridor, two-axle trucks comprise the largest share of truck traffic.

Rail

After trucking, rail carries the next-largest fraction of Bay Area goods. Oakland is the center of the Bay Area rail network and the most significant elements are located in the East Bay and along the Suisun Bay (north and south). Major intermodal terminals are in Richmond and Oakland. Oil refineries and auto terminals along the Suisun Bay network also generate substantial rail traffic. The Union Pacific (UP) line to Roseville and the Burlington Northern and Santa Fe (BNSF) line to Stockton are the two major rail routes in the Bay Area. The Bay Area is a net consumer of goods by rail, with inbound tonnage more than twice that of outbound. Contra Costa and Alameda counties are the largest origins and destinations for Bay Area rail

traffic. Leading rail commodities are crushed stone for construction, autos, steel, petroleum products, beverages (including wine), and waste and scrap.

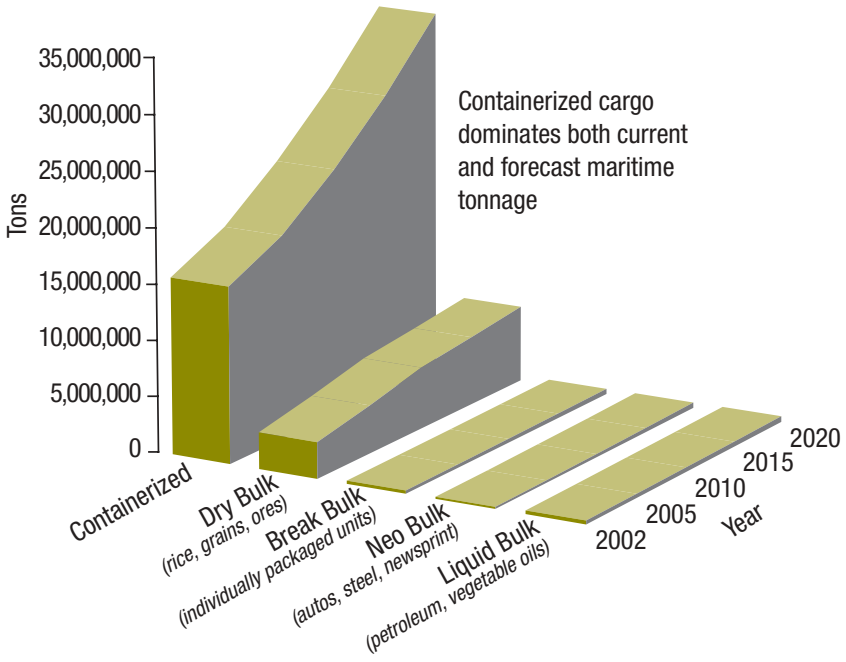
Marine

Bay Area maritime cargo includes containerized cargo at Oakland and San Francisco, bulk cargoes at San Francisco, Richmond, Redwood City, and Benicia, and crude petroleum products, raw sugar and bay sand handled at private terminals. Unlike the ports of Los Angeles and Long Beach, export cargo volumes at Oakland exceed import cargo volumes. Containerized cargo at the Port of Oakland accounts for the largest share of tonnage and value. Growth in containerized cargo is forecast at 5 percent per year and this cargo will continue to dominate future maritime trade.

Air Cargo

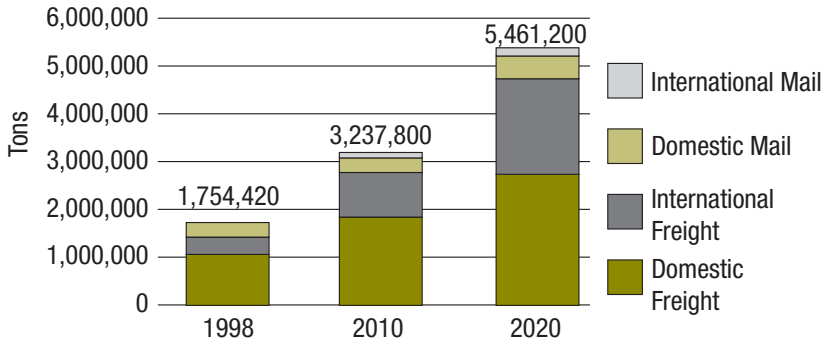
Air cargo is the fastest-growing segment of the Bay Area goods-movement system. Air cargo volume is forecast to triple between 1998 and 2020, with 125 percent increase in all-cargo flights. Bay Area airports have tended to specialize in the type of cargo they handle, with Oakland International being the major domestic air cargo facility and San Francisco International handling most of the international traffic.

Bay Area Seaport Tonnage Forecasts



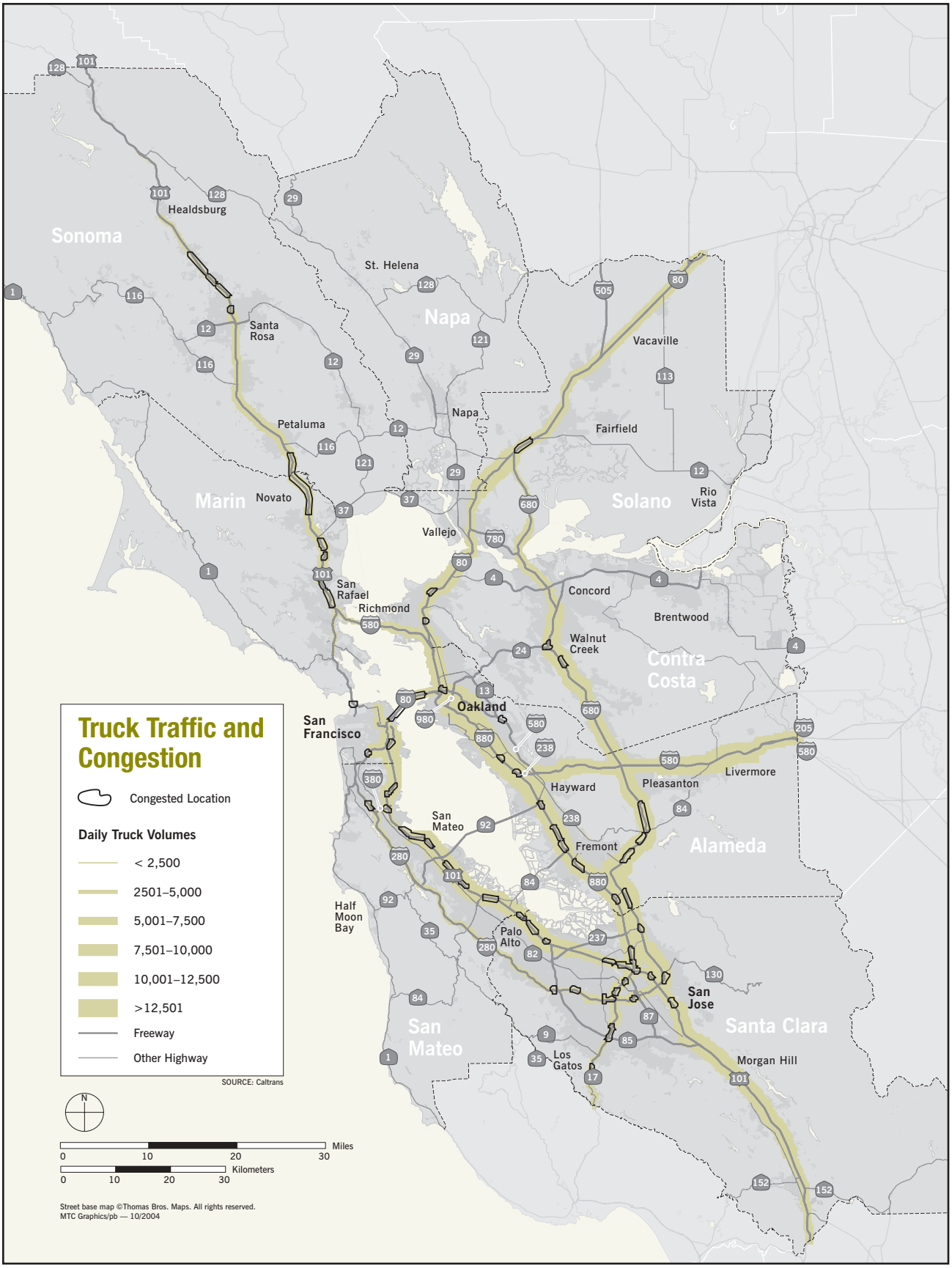
Source: Bay Area Seaport Plan, 2003

Bay Area Air Cargo Forecasts — Total Cargo Tonnage Will Triple by 2020 to 5.5 Million Tons Annually



Source: Bay Area Seaport Plan, 2003

Many of the Highly-Traveled Truck Corridors Also Experience High Levels of Congestion



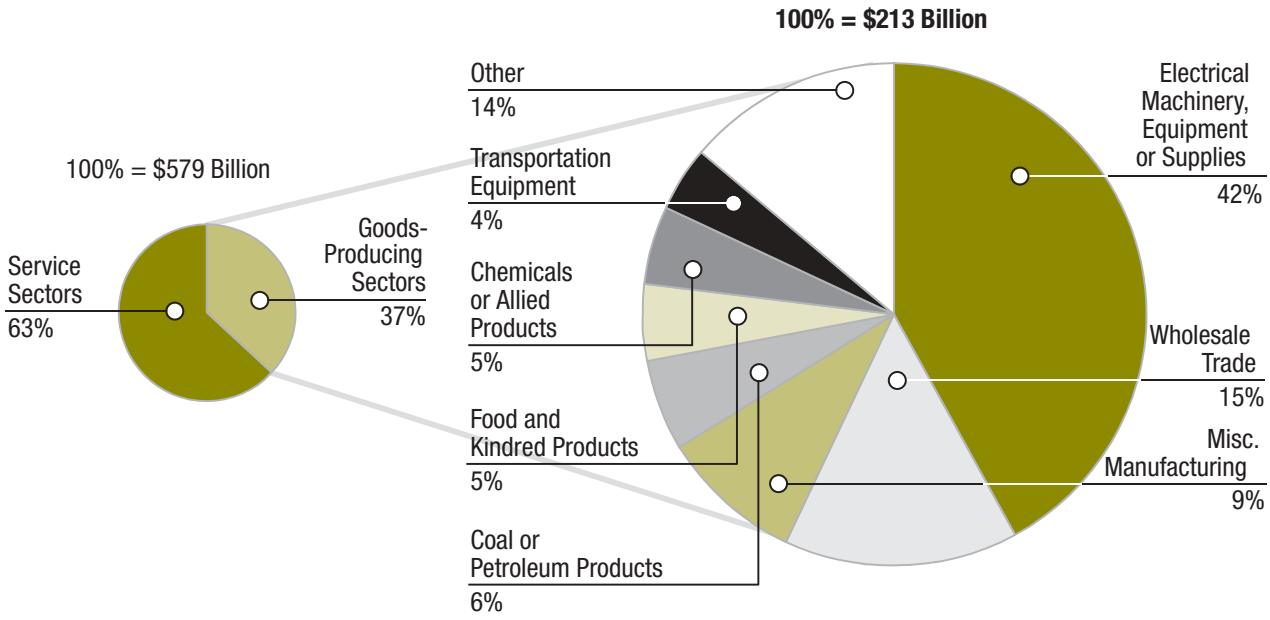
Goods Movement Is Critical to the Bay Area Economy

Goods movement is critically important to Bay Area businesses. Over 37 percent of Bay Area economic output is in manufacturing, freight transportation, and warehouse and distribution businesses. Collectively, these goods-movement-dependent businesses spend approximately $6.6 billion on transportation services. The businesses providing these services also play a critical role as generators of jobs and economic activity in their own right. Bay Area goods-movement businesses provided at least 5.9 percent of the region's employment in 1997.

Since these estimates do not include employment in private warehouses, it is likely that goods-movement businesses provide almost twice as much employment as indicated in these figures. In addition, the jobs provided are low-skill jobs, which is important at a time when other opportunities in manufacturing are declining. For example, in Napa-Solano and Alameda-Contra Costa, goods-movement businesses provide 15 percent and 12 percent of lower-skilled jobs, respectively. Goods-movement businesses generate multiplier effects that tend to be concentrated here in the Bay Area. For example, every job in the Bay Area railroad industry provides an additional 2.3 jobs elsewhere in the regional economy.

- Bay Area businesses spend $6.6 billion annually on transportation services
- Goods-movement businesses provide job diversity

Goods-Producing Industries Are Critical to the Bay Area Economy



Source: Caltrans, 2000

Employment in Bay Area Goods-Movement-Related Industries (Number of employees by county)

Industry	Alameda	Contra Costa	Marin	Napa	San Francisco	San Mateo	Santa Clara	Solano	Sonoma	TOTAL
Trucking industries	24,191	5,427	2,055	949	10,825	7,088	13,742	3,230	3,757	**71,264**
Warehousing and distribution	1,275	310	49	119	195	257	548	88	164	**3,005**
Marine cargo and shipping industries	2,909	396	469	0	1,982	19	10	148	0	**5,933**
Air cargo, rail freight and intermediate goods-movement industries	9,327	1,354	456	119	4,126	26,794	3,035	438	793	**46,442**
TOTAL – All goods-movement-related industries	**37,702**	**7,487**	**3,029**	**1,187**	**17,128**	**34,158**	**17,335**	**3,904**	**4,714**	**126,644**
Percent of total employment in county	**6.5%**	**2.7%**	**3.1%**	**2.6%**	**3.3%**	**10.7%**	**1.9%**	**4.8%**	**3.2%**	

Spending on Transportation Services by Bay Area Manufacturing and Construction Industries (Year 2002)

	Spending on Transportation by Manufacturing Industry		Spending on Transportation by Construction Industry	
Goods Movement Industry	**Millions of Dollars**	**Percent of Total**	**Millions of Dollars**	**Percent of Total**
Trucking and warehousing	$1,881	29%	$391	20%
Railroads and passenger ground transportation	$620	9%	$47	2%
Air transportation	$927	14%	$36	2%
Water transportation	$126	2%	$8	< 1%
Pipelines, freight forwarders, and related services	$382	6%	0	< 1%
Total spending on outsourced transportation	**$3,936**	**60%**	**$482**	**25%**
Spending on in-house transportation	$2,669	40%	$1,447	75%
TOTAL	**$6,605**	**100%**	**$1,929**	**100%**

Source: Caltrans, 2002

The Future of Goods Movement in the Bay Area Has Serious Implications for Land-Use Planning

Goods-movement-oriented businesses need access to reasonably priced land, in reasonable proximity to customers, where they can conduct their activities without undue conflicts with neighboring land uses. This is becoming increasingly difficult in the Bay Area.

The highest concentrations of warehouse and industrial space in the region remain along the central bayside corridors (Interstates 80/880 in Alameda and Contra Costa counties, northern Santa Clara County, and Highway 101 in San Mateo County). These locations provide good access to consumer markets and businesses, and to the region's airports and seaports. In recent years there has been growth in warehouse and industrial space stretching outward along the I-80 corridor in Solano County, the I-580 corridor in the Tri-Valley/Livermore area, and into San Joaquin County. This outward movement of goods-movement businesses reflects market pressures toward higher-value uses in the central bayside locations.

Regional growth forecasts show continuing residential and commercial densification in the central bayside areas, causing competition for lands currently in warehouse and industrial uses. Smart Growth policies, which do not explicitly address goods movement, would only intensify these trends. In addition, growth in outlying areas is making access to already congested corridors more difficult, even as these access routes are becoming more important for goods movement. Impacts of these trends on goods movement could include more truck miles on the regional road system (and associated increases in pavement deterioration and truck-involved accidents), more truck emissions, longer truck travel times and higher costs of goods distribution.

Local land-use policies support these market trends and have had the effect of further limiting the land supply for goods-movement-oriented uses. Land-use policies that permit goods-movement-

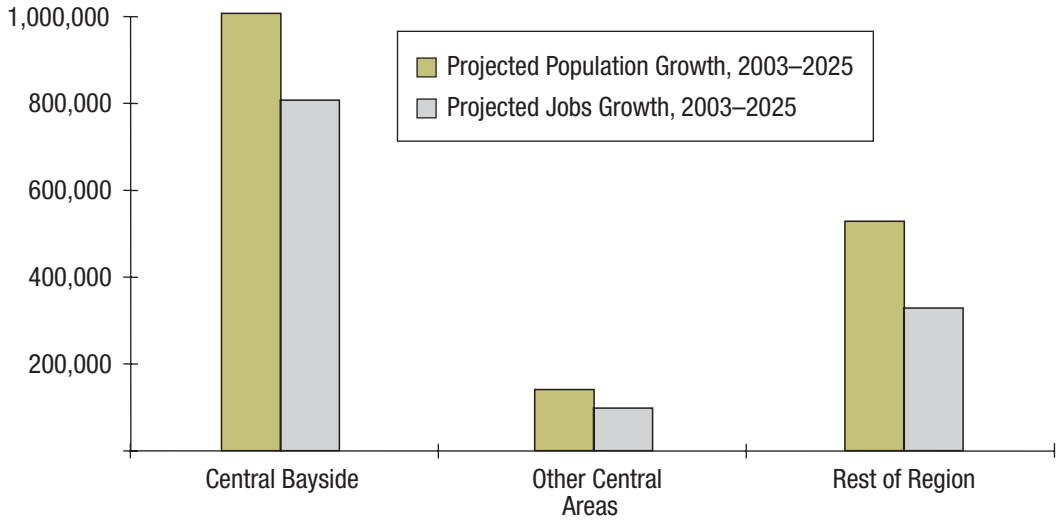
- Regional development trends exert market and regulatory pressures on existing goods-movement land uses in central bayside locations.
- New concentrations of goods-movement uses on the perimeter of the Bay Area are focused in a few congested regional commuter access corridors.
- The regional Smart Growth Vision needs to integrate goods-movement considerations.

In 2002, the Bay Area's five regional agencies released a new Smart Growth Vision that called for greater concentration of jobs and housing growth in existing urban and suburban areas.

Guided by these assumptions, the Association of Bay Area Governments' Projections 2003 forecast projects that a substantial portion of new Bay Area jobs and housing will be located in Central Bayside communities — areas where there is also a heavy concentration of goods-movement activities.

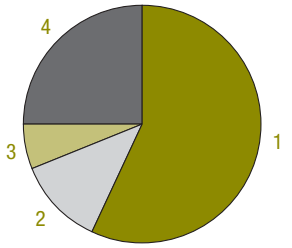
It is important that these goods-movements locations be preserved in order to preserve the viability of the freight industry and the economic vitality of the region.

Most Residential and Commercial Growth Is Forecast for Central Bayside Locations, Where Most of the Region's Goods-Movement Activities Are Concentrated



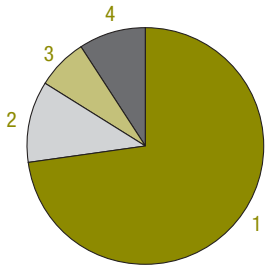
Source: Projections 2003, Association of Bay Area Governments

Particulate Matter (PM) Emissions in the Bay Area by Mode



1. Truck	57%
2. Air	12%
3. Rail	6%
4. Marine	25%

Nitrogen Oxide (NOx) Emissions in the Bay Area by Mode



1. Truck	73%
2. Air	11%
3. Rail	7%
4. Marine	9%

Source: Bay Area Air Quality Management District

oriented uses also tend to allow for upgrading to higher-value uses. Standards meant to minimize land-use conflicts and negative community impacts regulate off-site impacts and operations and can raise costs for goods-movement businesses. The effects of these land-use policies coupled with market pressures are driving goods-movement businesses from existing central locations.

At the local level, there are strong economic, fiscal and political incentives to promote higher-value uses and limit growth of goods-movement businesses. However, the overall effect on the regional economy, transportation system and the environment also needs to be taken into account. Balancing these local concerns with the needs of the regional goods-movement system will require that new strategies be woven into the fabric of the regional Smart Growth Vision.

Air Quality

Goods movement has a significant impact on the environment. Ground-level ozone, the main ingredient in smog, is formed by complex chemical reactions of volatile organic compounds (VOC) and nitrogen oxides (NOx) in the presence of heat and sunlight. Particulate matter (PM), a diesel engine pollutant, is easily inhaled and deposited deep in the lungs. Goods-movement generates emissions both during onroad activity (e.g., trucks driving) and nonroad activity (e.g., cargo loading, truck idling).

Several measures have been enacted to mitigate the emissions from goods-movement activity. The most significant are the U.S. Environmental Protection Agency's new emission standards for heavy-duty diesel engines. These standards will reduce diesel truck engine emissions for NOx and PM by 90 percent. As these cleaner engines are phased in to the vehicle fleet, there will be significant reductions in the amount of these pollutants in the air in the Bay Area.

The Bay Area Air Quality Management District currently funds low-emission vehicle projects through its Transportation Fund for Clean Air (TFCA) Program, Carl Moyer Program and other Air District grant programs. These programs provide a wide variety of incentives to goods-movement businesses to:

- Purchase low- or zero-emission vehicles or engines
- Replace or retrofit engines
- Install exhaust treatments and add-on equipment
- Use clean fuels or additives
- Build infrastructure to supply alternative fuels

In July of 2004, the California Air Resources Board approved a measure that limits idling of most diesel-fueled commercial motor vehicles to five minutes. It is scheduled to become effective once it is approved by the California Office of Administrative Law, a process that could take until the end of 2004.

Diverting freight from truck to rail is also a means of reducing emissions related to goods-movement activity. In California, recent studies of the California Inter-Regional Intermodal Shuttle (CIRIS) have demonstrated emissions reductions from diverting freight from truck to rail for goods traveling between the Port of Oakland and the Central Valley.

The Goods-Movement Issues Facing the Bay Area Require New Vision, Policy and Investment

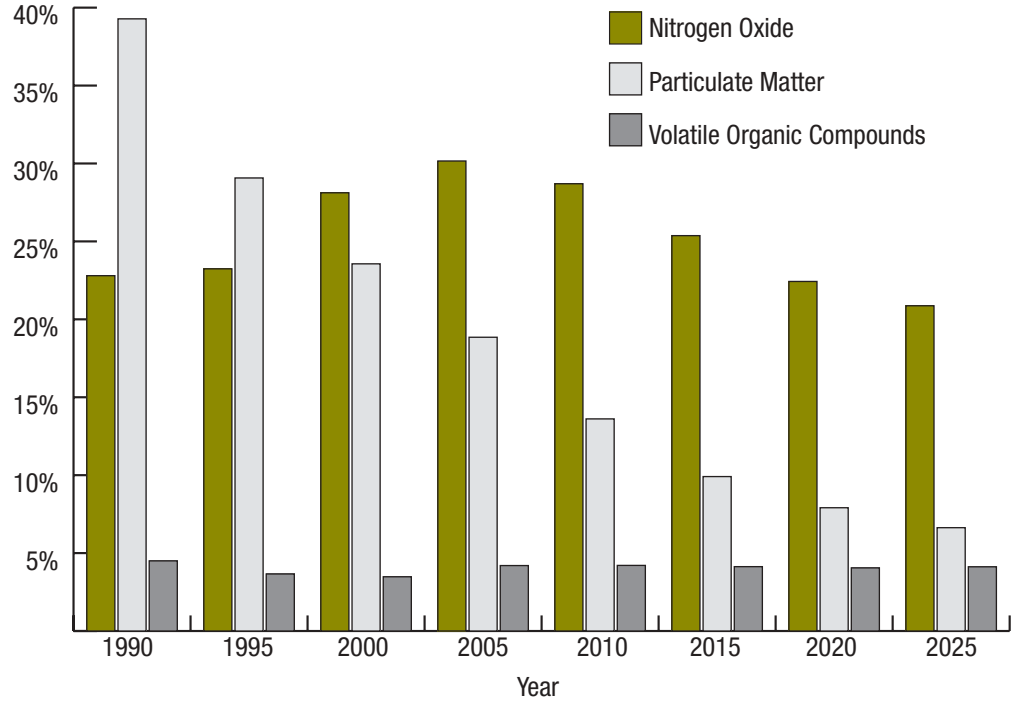
In order to keep pace with the growing demands of the regional economy in a manner that minimizes negative impacts on mobility, safety and quality of life, the Bay Area must address issues affecting each element of the goods-movement system.

Highway Issues

All the major truck corridors identified in this summary report face growing levels of recurrent congestion that affects goods-movement costs. Trucks contribute to this congestion in these corridors because they use more capacity per vehicle than autos do. In the past this was less of a problem than it is today because trucks could avoid the periods of peak congestion, since most of their pickups and deliveries occur during business hours. But as the peak periods have spread out and trucking businesses have been pushed to the outer Bay Area, trucks are finding it more difficult to avoid peak periods of congestion. In addition, customer requirements are changing, and suppliers are responding by giving "better, faster and cheaper services." Cost of inventory is continuously declining for most industries — with more "just in time" delivery, trucks are becoming "rolling warehouses."

While recurrent congestion adds cost to goods movement, it is at least predictable. Poor reliability due to incident-related delay is a fact of life in many goods-movement corridors that affects on-time performance and adds significant costs for shippers. In older corridors that were not designed to handle trucks (such as parts of I-880), accidents involving trucks are common and a major cause of unreliability.

Heavy-Duty Diesel Vehicles' Contribution to Total Bay Area Emissions (by Pollutant)



Source: Bay Area Air Quality Management District

Rail Issues

There are a number of locations throughout the East Bay where at-grade rail crossings pose problems for both the rail network (slowing rail traffic and creating bottlenecks) and for truck and auto traffic. Grade crossings on facilities parallel to I-880 have significant operational implications for the freeway and arterial system in several locations. Another problem facing the rail system is the growing competition between freight rail needs and passenger rail needs in the Capitol Corridor (I-80) and Altamont Pass Corridor (I-580). More capacity to address these conflicting needs may be needed in the future. Finally, there is growing interest in using the rail network as an alternative connection to the San Joaquin Valley. However, current facilities and services may not be capable of filling this role.

The freight rail issues are being dealt with by Union Pacific and Burlington Northern/Santa Fe railroads, which own and operate the system. For the most part, the system in the Bay Area is functioning effectively for the primary markets it serves.

Marine Issues

Growth in containerized cargo is expected to generate substantial truck traffic at the Port of Oakland, bringing containers to and from the port directly and to the off-dock intermodal terminals. Peak-period congestion problems are becoming an important access issue. Because many of the support facilities are now located in the Central Valley, trucks serving these shippers need to be on the road earlier in the day, and this causes conflict with the commuter peak.

The Port of Oakland has the potential to grow as a significant player in Pacific Rim trade. This provides a needed alternative as congestion continues to impact the San Pedro Bay ports in Southern California. But rail access needs to be maintained in good operating condition. North-south rail capacity in and out of the port is beginning to become bottlenecked. A contributing factor is the growing demand for access to the freight rail system from the Capitol Corridor passenger system. While rail capacity may not be a significant constraint to port growth today, it is likely to impact the Port of Oakland's role as a Pacific Rim gateway in the future.

Peter Beeler

There is growing conflict between autos and trucks accessing the areas around the gateway facilities. The City of Oakland is interested in growing the area around the port (Jack London Square) as a tourist and recreation destination, and this creates serious conflicts between trucks and autos, and exacerbates delays at rail grade crossings. Real estate market and land-use pressures on port-serving uses also threaten the long-term viability of the port as a West Coast load center.

Air Cargo Issues

While on-airport capacity for runways and air cargo support facilities is currently not a major problem, there are constraints that could prevent the Bay Area from meeting air cargo needs in the future. Peak-period congestion is becoming more of an issue for expedited delivery shipments needing access to the airport, particularly as it relates to the evening cutoff for overnight deliveries. A related issue concerns the unique geography of the region and the specialized roles of the region's airports. With international cargo focused at San Francisco International and domestic shipments focused at Oakland International, shippers on both sides of the Bay need access to each airport, usually on very tight schedules. Bay crossing alternatives that provide more direct access to these two facilities would greatly benefit shippers who depend on this access. Landside capacity for support facilities is a growing problem. The availability of air cargo storage and sort facilities constrains future growth in international cargo shipments from San Francisco International.

FedEx Corp.

Interstate 880 Corridor Strategy

- Bottleneck capacity improvements
- Integrated public/private "Smart Freight Corridor"
- Elimination of operational deficiencies
- Arterial improvement plan and coordinated truck route plan

Strategic Investments to Improve the Goods-Movement System

The Regional Goods Movement Study created the opportunity to identify critical strategies to support regionally significant goods-movement facilities. Funding for these projects will need to come from various sources. Some goods-movement projects support city and county priorities and can be programmed directly by the county-level congestion management agencies. Other projects benefit the interregional system and can be funded by the California Transportation Commission's Interregional Transportation Improvement Program or the proposed Global Gateways Program. Projects of national significance may find new funding opportunities in provisions of the reauthorized federal surface transportation legislation, such as the proposed gateway improvement program or a well-funded "Borders and Corridors" program.

Tom Tracy

Highway Investment Strategies

I-880 Corridor Strategy

As one of the region's preeminent goods-movement corridors, this highway would benefit from a comprehensive and coordinated strategy, including:

- Bottleneck capacity improvements
- Adoption of information technology solutions to improve operations (including electronic credentialing, Internet-based appointment systems, and Intelligent Transportation System (ITS) programs)
- Correction of design deficiencies (particularly at older interchanges)
- Improvements to connecting and parallel arterial streets
- Industrial preservation land-use strategies.

Interregional Gateway Strategy

Improvements envisioned include:

I-580 — Tolled truck-only lanes and truck-climbing lanes

I-80 — Completion of improvements at the I-80/I-680/Route 12 interchange and relocation of the Cordelia truck scale

Route 152 — Upgrades between U.S. 101 and the Santa Clara County line

U.S. 101 — Various operational improvements between San Jose and San Francisco

Rail Investment Strategies

Rail Grade Crossings

This would create a new program of cost-shared funding for rail grade-crossing safety improvements and rail grade separations.

Alternative Modal Services

This would provide short-term operating subsidies for short-haul intermodal rail services to provide modal alternatives in congested interregional corridors.

Marine Investment Strategies

Port Access Improvements

Provide funding for spot improvements on I-880, freeway interchanges and connecting arterials to provide better access to the Port of Oakland.

Public/Private Information Systems Technologies

The integration of public information technology programs (especially traveler information and incident management) with private dispatch and appointment systems provides potential to improve mobility of port-related traffic.

Air Cargo Investment Strategies

Improved Cross-bay Connections to the Airports

A fast freight ferry system linking the airports and major shipper concentrations across the Bay should be investigated.

Tom Tracy

California InterRegional Intermodal Service (CIRIS)

CIRIS is a proposal to provide a short-haul intermodal connection between the Port of Oakland and shippers in the San Joaquin Valley. A number of alternative locations have been investigated in the Valley and there appears to be considerable interest among shippers. While subsidies may be needed to initiate this service, over the long term congestion in the connecting corridors may push trucking costs to the port to a level where the rail option could be competitive in its own right.

Creative alternative modal solutions such as CIRIS could provide shippers with service improvements while reducing community impacts of freight movement.

Better Planning to Make Smarter Decisions, Improve Goods-Movement Mobility and Make Goods Movement a Better Neighbor

MTC is committed to ensuring that goods movement is well integrated into regional transportation planning. This will require new programs and support to city and county planning agencies. Program concepts that could achieve these goals include the following.

Truck Route Planning

A program would be developed to:

- Establish standards for the selection and physical features of designated truck routes
- Develop coordinated city/county truck route plans that ensure route continuity across jurisdictions
- Provide priority consideration for projects that improve and maintain truck routes in the regional truck route system

Rail Grade Crossings

A plan would be developed for prioritizing and funding rail grade crossing improvements and grade separations to reduce crossing delays at critical locations, improve safety and improve rail freight operations.

Travel-Demand Model Improvements

MTC will make improvements to the regional travel forecasting tool that would provide the ability to forecast interregional truck trips, and would better represent the congestion impacts of large trucks.

Leadership in Regional Goods-Movement/Land-Use Planning

MTC will work with the Joint Policy Committee (which includes the Association of Bay Area Governments and the Bay Area Air Quality Management District), to ensure inclusion of goods-movement considerations in Smart Growth plans and policies.

Airport/Seaport Planning

MTC will work with the Bay Conservation and Development Commission and the port authorities to expand the scope of regional airport and seaport plans to include land uses in key locations likely to be needed to support seaport and air cargo facilities.

Connection Between Land Use and Goods Movement

MTC is committed to coordinating its transportation investment and policy decisions with regional land-use policies in order to improve mobility and quality of life. This will include consideration of the implications of local land-use decisions on regional goods-movement costs, efficiency and the environment. If the supply of land for goods-movement uses can be preserved in key locations throughout the inner Bay Area, resident and business needs will be supported at lower cost and with reduced truck impacts on roads and air quality.

Yet to achieve a vision of compact growth and livable communities, difficult challenges must be acknowledged, accepted and addressed. With respect to goods movement, reuse of industrial spaces for housing and commercial development could drive goods-movement-oriented

uses farther out to the perimeter of the region, driving up the cost of goods and reducing job diversity options. Land-use conflicts around trade gateway facilities, such as the seaports and airports, could threaten the long-term viability of these critical regional assets and dampen the fast-growing, trade-dependent sectors of the regional economy. Therefore, the following guiding principles will be incorporated into regional planning:

- In locations that support critical goods-movement needs of the central Bay Area, community benefits must be achieved through the application of best practices in off-site impact mitigation and better business practices, while still preserving central location options for the goods-movement-oriented businesses.

- Some suburban locations must accommodate the region's growing needs for warehouse and regional distribution facilities. These facilities will need to be integrated with current land uses without creating major auto/truck/rail conflicts. This smarter suburban development can be accomplished through new approaches to site layout and street design as well as consideration of targeted locations for key perimeter goods-movement facilities in "freight villages" to reduce conflicts and provide greater efficiency.

- In consideration of jobs-housing balance, the "jobs" side of the equation must achieve its own balance in terms of diversity of job opportunities for residents with the widest range of skill levels and training. Good-paying jobs at the lower end of the skill range must be preserved and land-use policies and transportation investments should be supportive of this objective.

- The trade gateways of the Bay Area — the seaports and airports — represent significant regional assets. Trade is the fastest-growing component of the regional economy and increasing globalization of the world economy portends increasing demands on our gateway facilities. MTC has a particular role to play in ensuring that these facilities remain functional and economically viable. Yet one of the biggest constraints facing these facilities in the future will be the lack of suitable land for supporting businesses and seaport/airport-serving land uses. Regional strategies and incentive programs need to be developed that acknowledge the special needs of communities that house these facilities, so that they will be encouraged to preserve these critical supporting land uses.

For more information on MTC's Regional Goods Movement Study, please visit our Web page at:

http://www.mtc.ca.gov

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Metropolitan Transportation Commission

California Department of Transportation

Bay Area Air Quality Management District

Economic Development Alliance for Business

Port of Oakland

Front cover photo: Tom Tracy

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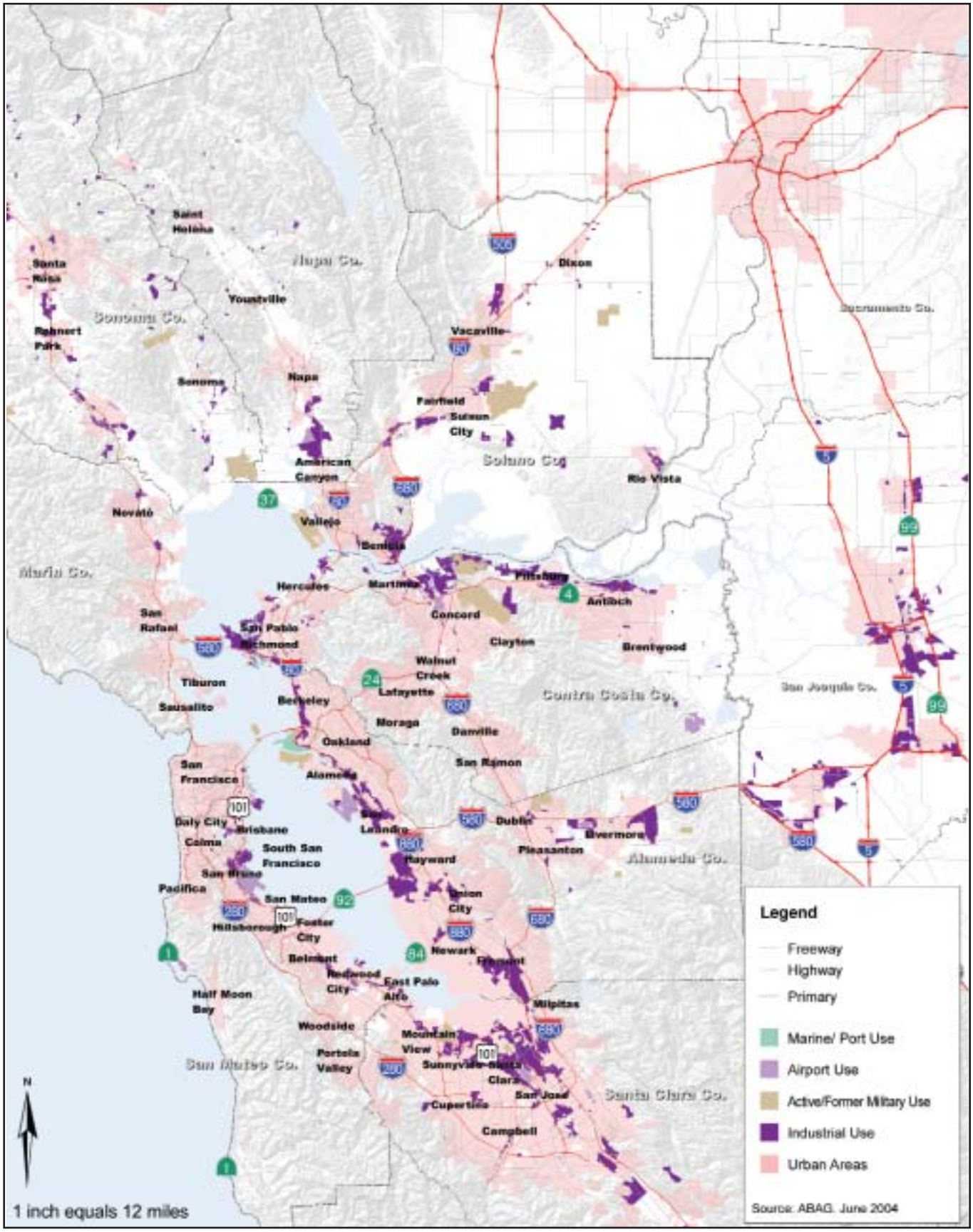
Overview of Regional Locations for Goods-Movement Uses



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